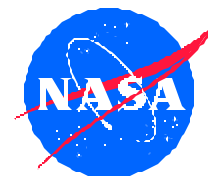


YAG Reinforcement Preforms for CMCs

**Foster-Miller, Inc.
Waltham, MA**



INNOVATION

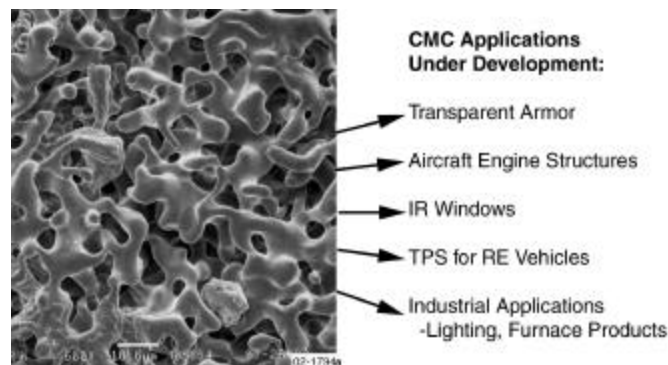
Single crystal YAG reinforcement preforms produced to net shape for CMC applications

ACCOMPLISHMENTS

- ◆ Single crystal YAG preforms produced in a range of YAG volume content, orientation, and porosity size
- ◆ Sapphire reinforcement preforms with similar architecture have produced alumina matrix CMCs with a high strength and an outstanding creep resistance at temperatures up to 1500°C in air

COMMERCIALIZATION

- ◆ US Special Operations Command (USSOCOM) has funded a \$375K program to produce improved transparent armor
- ◆ The base oxide processing technology has other commercial applications in lighting products and industrial applications; being pursued through US DOE and commercial funding
- ◆ Two new jobs were created



Single Crystal YAG Reinforcement Preform Technology

GOVERNMENT/SCIENCE APPLICATIONS

- ◆ Applications under development for YAG reinforcement preforms include:
 - Transparent armor for ground, sea and air vehicles
 - IR windows for hypersonic missiles and re-entry vehicles
 - Aircraft engine structures
 - Thermal protection systems for re-entry vehicles.
- ◆ USSOCOM, US Air Force and US Navy, and their prime contractors, have provided \$1.8M funding towards development of above applications
- ◆ US DOE and suppliers are funding development of energy efficient lighting products using the oxide manufacturing process